WHAT IS CLAIMED IS:

1. A weather radar display system, comprising:

a weather radar antenna;

processing electronics, coupled to the weather radar antenna, enhancing weather radar returns based on a reflectivity model which differentiates lower level activity from higher level activity when the weather activity is detected from weather systems at long range and the reflectivity using short range thresholds would display only higher level activity; and

a weather radar display displaying multiple colors representative of the different levels of weather activity based on the enhanced returns.

2. The weather radar display of claim 1, wherein the colors comprise red, yellow, and green.

3. The weather radar display of claim 1, wherein the model is based on empirical data.

4. The weather radar display of claim 1, wherein the model is a mathematical model.

5. The weather radar display of claim 1, wherein the thresholds are not changed from short range thresholds.

6. A weather radar display system, comprising:

a weather radar antenna;

processing electronics, coupled to the weather radar antenna, enhancing weather radar returns of long lines of storms detected at long range, the enhancement based on local averaging of weather radar returns, and produced in an iterative process; and

a weather radar display displaying multiple colors representative of the different levels of weather activity based on the enhanced returns.

7. The weather radar display of claim 6, wherein the colors comprise red, yellow, and green.

8. The weather radar display of claim 6, wherein the averaging is carried out over a first subset of the returns and individual values of the subset of returns are adjusted based on the average.

9. The weather radar display of claim 8, wherein the averaging is carried out over a second subset of the returns and individual values of the subset of returns are adjusted based on the average of the second subset.

10. The weather radar display system of claim 9, wherein the second subset overlaps the first subset.

11. A method of processing weather radar display returns from long range weather radar, comprising:

receiving the weather radar returns;

providing a model of conventional weather systems;

applying the model to the received weather radar returns; and

applying conventional weather radar display thresholds.

12. The method of claim 11, wherein the model is based on empirical data.

13. The method of claim 11, wherein the model is a mathematical model.

14. The method of claim 11, further comprising:
displaying a first color on the display for data having values above a first threshold.

15. The method of claim 11, further comprising:
displaying a second color on the display for data having values below a second threshold.

16. A method of processing weather radar display returns from long range weather radar, comprising:
receiving the weather radar returns;
averaging a first subset of the weather radar returns; and
adjusting the individual values of the first subset based on the averaging.

17. The method of claim 16, further comprising:
averaging a second subset of weather radar returns ; and
adjusting the individual values of the second subset based on the average of the second subset.

18. The method of claim 17, wherein the first subset and the second subset overlap and the second subset contains previously enhanced values.

19. The method of claim 16, further comprising:
dividing a region of the weather radar display into a grid.

20. The method of claim 16, wherein the method is applied to storm systems in the intertropical convergence zones.